CLAIMS

1. (Amended) A sputtering target made by a process including casting having a target surface with the following characteristics:

a) substantially homogenous composition at any location;

b) substantial absence of pores, voids, inclusions and other casting defects;

c) an absence of detectable precipitates;

d) an average grain size of less than 1μm; and

e) substantially uniform structure and texture at any location.

2. A sputtering target according to claim 1 comprising one or more of Al, Ti, Cu, Ta, Ni, Mo, Au, Ag, and Pt.

3. A sputtering target according to claim 1 comprising Al and about 0.5 wt.% Cu.

45. The sputtering target of claim 1 comprising an alloy which includes at least one of Al, Ti, Cu, Ta, Ni, Mo, Au, Ag and Pt.

46. The sputtering target of claim 1 comprising Al.

47. The sputtering target of claim 1 comprising Ti.

48. The sputtering target of claim 1 comprising Cu.

49. The sputtering target of claim 1 comprising Ta.

50. The sputtering target of claim 1 comprising Ni.

51. The sputtering target of claim 1 comprising Mo.

52. The sputtering target of claim 1 comprising Au.

53. The sputtering target of claim 1 comprising Ag.

54. The sputtering target of claim 1 comprising Pt.

55. (Amended) A sputtering target formed from a cast material and comprising:

a yield strength of greater than 50 mega pascal (MP), and an ultimate tensile strength of greater than 125 MP;

a substantial absence of pores, voids and inclusions; and

an average grain size of less than about 1 μm.

56. The sputtering target of claim 55 comprising one or more of Al, Ti, Cu, Ta, Ni, Mo, Au, Ag, and Pt.

57. The sputtering target of claim 55 comprising an alloy which includes at least one of Al, Ti, Cu, Ta, Ni, Mo, Au, Ag and Pt.

58. The sputtering target of claim 55 further comprising a substantial absence of precipitates.

59. The sputtering target of claim 55 further comprising a substantially uniform structure and texture at any location.

60. The sputtering target of claim 55 further comprising a substantially homogeneous composition at any location.

61. (Amended) A sputtering target comprising copper, formed by a process including casting, and having a target surface with the following characteristics:

a) substantially homogenous composition at any location;

b) substantial absence of pores, voids, inclusions and other casting defects;

c) an absence of detectable precipitates;

d) an average grain size less than about 1μm; and

e) substantially uniform structure and texture at any location.

62. The sputtering target of claim 1 further comprising one or more of Al, Au, and Ag.

63. The sputtering target of claim 62 comprising Al.

64. The sputtering target of claim 62 comprising Au.

65. The sputtering target of claim 62 comprising Ag.

66. (Amended) A sputtering target formed from a cast copper material and comprising:

a yield strength of greater than 50 mega Pascal (MP), and an ultimate tensile strength of greater than 125 MP;

a substantial absence of pores, voids and inclusions; and

an average grain size of less than about 1 μm.

67. The sputtering target of claim 66 wherein the copper material comprises pure copper.

68. The sputtering target of claim 66 comprising one or more of Al, Au, and Ag.

69. The sputtering target of claim 66 wherein the copper material comprises a copper alloy having one or more of the elements selected from the group consisting of Al, Au, and Ag.

70. The sputtering target of claim 66 further comprising a substantial absence of precipitates.

71. The sputtering target of claim 66 further comprising a substantially uniform structure and texture at any location.

72. The sputtering target of claim 66 further comprising a substantially homogeneous composition at any location.

73. (New) The sputtering target of claim 55 wherein both the yield strength and the ultimate tensile strength are greater than 125 MP.

74. (New) The sputtering target of claim 55 wherein both the yield strength and the ultimate tensile strength are greater than 150 MP.